

Release notes for ENDF/B Development photoat-099_Es_000
evaluation

ENDF
B-VII.dev

October 13, 2016

- checkr Warnings:

1. A previous error halted parsing of the current section
MAT=9900, MF= 1, MT=451 (1): Parsing stopped

```
ERROR(S) FOUND IN MAT=9900, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      170 TO      209
```

- checkr Errors:

1. A variable is outside the allowed ENDF range
MAT=9900, MF= 1, MT=451 (0): Variable range

```
ERROR(S) FOUND IN MAT=9900, MF= 1, MT=451
MOD =      3 OUT OF RANGE      0 -      1      RECORD NUMBER      170
```

2. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=501 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=9900, MF=23, MT=501
SECTION 23/501 NOT IN DIRECTORY      RECORD NUMBER      211
```

3. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=502 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=9900, MF=23, MT=502
SECTION 23/502 NOT IN DIRECTORY      RECORD NUMBER      1308
```

4. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=504 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=9900, MF=23, MT=504
SECTION 23/504 NOT IN DIRECTORY      RECORD NUMBER      1817
```

5. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=515 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=9900, MF=23, MT=515
SECTION 23/515 NOT IN DIRECTORY      RECORD NUMBER      1858
```

6. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=516 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=9900, MF=23, MT=516
SECTION 23/516 NOT IN DIRECTORY      RECORD NUMBER      1893
```

7. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=517 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=517
SECTION 23/517 NOT IN DIRECTORY RECORD NUMBER 1948

8. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=522 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=522
SECTION 23/522 NOT IN DIRECTORY RECORD NUMBER 1990

9. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=534 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=534
SECTION 23/534 NOT IN DIRECTORY RECORD NUMBER 2514

10. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=535 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=535
SECTION 23/535 NOT IN DIRECTORY RECORD NUMBER 2534

11. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=536 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=536
SECTION 23/536 NOT IN DIRECTORY RECORD NUMBER 2556

12. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=537 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=537
SECTION 23/537 NOT IN DIRECTORY RECORD NUMBER 2578

13. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=538 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=538
SECTION 23/538 NOT IN DIRECTORY RECORD NUMBER 2600

14. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=539 (0): Directory (b)

ERROR(S) FOUND IN MAT=9900, MF=23, MT=539
SECTION 23/539 NOT IN DIRECTORY RECORD NUMBER 2625

15. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=540 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=540 | RECORD NUMBER | 2651 |
| SECTION 23/540 NOT IN DIRECTORY | | |
16. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=541 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=541 | RECORD NUMBER | 2678 |
| SECTION 23/541 NOT IN DIRECTORY | | |
17. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=542 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=542 | RECORD NUMBER | 2707 |
| SECTION 23/542 NOT IN DIRECTORY | | |
18. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=543 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=543 | RECORD NUMBER | 2735 |
| SECTION 23/543 NOT IN DIRECTORY | | |
19. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=544 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=544 | RECORD NUMBER | 2760 |
| SECTION 23/544 NOT IN DIRECTORY | | |
20. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=545 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=545 | RECORD NUMBER | 2790 |
| SECTION 23/545 NOT IN DIRECTORY | | |
21. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=546 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=546 | RECORD NUMBER | 2820 |
| SECTION 23/546 NOT IN DIRECTORY | | |
22. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=547 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=547 | RECORD NUMBER | 2857 |
| SECTION 23/547 NOT IN DIRECTORY | | |
23. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=548 (0): Directory (b)

- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=548 | |
| | SECTION 23/548 NOT IN DIRECTORY | RECORD NUMBER 2904 |
24. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=549 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=549 | |
| | SECTION 23/549 NOT IN DIRECTORY | RECORD NUMBER 2965 |
25. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=550 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=550 | |
| | SECTION 23/550 NOT IN DIRECTORY | RECORD NUMBER 3026 |
26. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=551 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=551 | |
| | SECTION 23/551 NOT IN DIRECTORY | RECORD NUMBER 3053 |
27. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=552 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=552 | |
| | SECTION 23/552 NOT IN DIRECTORY | RECORD NUMBER 3092 |
28. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=553 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=553 | |
| | SECTION 23/553 NOT IN DIRECTORY | RECORD NUMBER 3125 |
29. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=554 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=554 | |
| | SECTION 23/554 NOT IN DIRECTORY | RECORD NUMBER 3180 |
30. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=555 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=9900, MF=23, MT=555 | |
| | SECTION 23/555 NOT IN DIRECTORY | RECORD NUMBER 3235 |
31. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=556 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=556 | RECORD NUMBER | 3318 |
| SECTION 23/556 NOT IN DIRECTORY | | |
32. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=559 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=559 | RECORD NUMBER | 3403 |
| SECTION 23/559 NOT IN DIRECTORY | | |
33. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=560 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=560 | RECORD NUMBER | 3438 |
| SECTION 23/560 NOT IN DIRECTORY | | |
34. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=561 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=561 | RECORD NUMBER | 3479 |
| SECTION 23/561 NOT IN DIRECTORY | | |
35. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=23, MT=570 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=23, MT=570 | RECORD NUMBER | 3523 |
| SECTION 23/570 NOT IN DIRECTORY | | |
36. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=27, MT=502 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=27, MT=502 | RECORD NUMBER | 3561 |
| SECTION 27/502 NOT IN DIRECTORY | | |
37. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=27, MT=504 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=27, MT=504 | RECORD NUMBER | 3610 |
| SECTION 27/504 NOT IN DIRECTORY | | |
38. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=27, MT=505 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=9900, MF=27, MT=505 | RECORD NUMBER | 3661 |
| SECTION 27/505 NOT IN DIRECTORY | | |
39. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=9900, MF=27, MT=506 (0): Directory (b)

• fudge-4.0 Warnings:

1. generic warning message
reaction label 0: Es + gamma [coherent] / Product: gamma (Error # 0): Warning

WARNING: coherentScattering is not a valid distribution component for 2-body reaction

2. FIXME: Generic fudge unimplemented message
reaction label 0: Es + gamma [coherent] / Product: gamma (Error # 2): Generic unimp (c)

WARNING: Checking not yet implemented for pointwise type data

3. generic warning message
reaction label 1: Es + gamma [incoherent] / Product: gamma (Error # 0): Warning

WARNING: incoherentScattering is not a valid distribution component for 2-body reaction

4. FIXME: Generic fudge unimplemented message
reaction label 1: Es + gamma [incoherent] / Product: gamma (Error # 2): Generic unimp (c)

WARNING: Checking not yet implemented for piecewise type data

5. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule
summedReaction label 31: total (Error # 0): Sumrule

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 100.00%

6. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule
summedReaction label 33: photoelectric absorption (Error # 0): Sumrule

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 77.26%

• fudge-4.0 Errors:

1. Calculated and tabulated thresholds don't agree
reaction label 0: Es + gamma [coherent] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

2. 2-body reaction not in center-of-mass frame
reaction label 0: Es + gamma [coherent] / Product: gamma (Error # 1): 2-body not in COM

WARNING: 2-body reaction not in center-of-mass frame!

3. Calculated and tabulated thresholds don't agree
reaction label 1: Es + gamma [incoherent] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

4. 2-body reaction not in center-of-mass frame
reaction label 1: Es + gamma [incoherent] / Product: gamma (Error # 1): 2-body not in COM

WARNING: 2-body reaction not in center-of-mass frame!

5. Energy range of data set does not match cross section range
reaction label 1: Es + gamma [incoherent] / Product: gamma / Distribution incoherentScattering - piecewise: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (0.0 -> 1000000000.0) vs (1.0 -> 1e+11)

6. Calculated and tabulated thresholds don't agree
reaction label 2: e- + e+ + Es [electron field] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 2.044e6 eV!

7. Calculated and tabulated thresholds don't agree
reaction label 3: e- + e+ + Es [nuclear field] / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!

8. Calculated and tabulated thresholds don't agree
reaction label 4: e- + Es1s1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 139110. eV!

9. Calculated and tabulated thresholds don't agree
reaction label 5: e- + Es2s1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 26824. eV!

10. Calculated and tabulated thresholds don't agree
reaction label 6: e- + Es2p1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 26007. eV!

11. Calculated and tabulated thresholds don't agree
reaction label 7: e- + Es2p3/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 20409. eV!

12. Calculated and tabulated thresholds don't agree
reaction label 8: e- + Es3s1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 6953.1 eV!

13. Calculated and tabulated thresholds don't agree
reaction label 9: e- + Es3p1/2 / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 6564.6 eV!

14. Calculated and tabulated thresholds don't agree
reaction label 10: $e^- + \text{Es}3p3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5247.2 eV!
15. Calculated and tabulated thresholds don't agree
reaction label 11: $e^- + \text{Es}3d3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4625.5 eV!
16. Calculated and tabulated thresholds don't agree
reaction label 12: $e^- + \text{Es}3d5/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4369.6 eV!
17. Calculated and tabulated thresholds don't agree
reaction label 13: $e^- + \text{Es}4s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1856.3 eV!
18. Calculated and tabulated thresholds don't agree
reaction label 14: $e^- + \text{Es}4p1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1673.6 eV!
19. Calculated and tabulated thresholds don't agree
reaction label 15: $e^- + \text{Es}4p3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1315.9 eV!
20. Calculated and tabulated thresholds don't agree
reaction label 16: $e^- + \text{Es}4d3/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1024. eV!
21. Calculated and tabulated thresholds don't agree
reaction label 17: $e^- + \text{Es}4d5/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 960.0700000000001 eV!
22. Calculated and tabulated thresholds don't agree
reaction label 18: $e^- + \text{Es}4f5/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 573.9299999999999 eV!
23. Calculated and tabulated thresholds don't agree
reaction label 19: $e^- + \text{Es}4f7/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 556.13 eV!
24. Calculated and tabulated thresholds don't agree
reaction label 20: $e^- + \text{Es}5s1/2$ / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 428.63 eV!

25. Calculated and tabulated thresholds don't agree
reaction label 21: $e^- + Es5p1/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 352.76 eV!
26. Calculated and tabulated thresholds don't agree
reaction label 22: $e^- + Es5p3/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 260.36 eV!
27. Calculated and tabulated thresholds don't agree
reaction label 23: $e^- + Es5d3/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 148.17 eV!
28. Calculated and tabulated thresholds don't agree
reaction label 24: $e^- + Es5d5/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 134.48 eV!
29. Calculated and tabulated thresholds don't agree
reaction label 25: $e^- + Es5f5/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 11.54 eV!
30. Calculated and tabulated thresholds don't agree
reaction label 26: $e^- + Es5f7/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 9.609999999999999 eV!
31. Calculated and tabulated thresholds don't agree
reaction label 27: $e^- + Es6s1/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 62.85 eV!
32. Calculated and tabulated thresholds don't agree
reaction label 28: $e^- + Es6p1/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 40.02 eV!
33. Calculated and tabulated thresholds don't agree
reaction label 29: $e^- + Es6p3/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 25.44 eV!
34. Calculated and tabulated thresholds don't agree
reaction label 30: $e^- + Es7s1/2$ / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5.78 eV!
35. Calculated and tabulated thresholds don't agree
summedReaction label 31: total / Cross section: (Error # 0): Threshold mismatch
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

36. Calculated and tabulated thresholds don't agree
summedReaction label 32: pair product / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!

37. Calculated and tabulated thresholds don't agree
summedReaction label 33: photoelectric absorption / Cross section: (Error # 0): Threshold mismatch

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5.78 eV!

• **xsectplotter** Warnings:

1. Encountered runtime warning in xsectplotter or Fudge or matplotlib
Error: RuntimeError

stderr while processing crossSection

/usr/local/lib/python2.7/site-packages/matplotlib-1.3.1-py2.7-linux-x86_64.egg/matplotlib/pyplot.py:412: RuntimeWarning: ... [3 more lines]